Airport & Aircraft Safety R&D Notes

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Remote Controlled Crack Monitoring (RCCM) System

The FASTER fixture and the RCCM system.

In support of the Federal Aviation Administration's (FAA) National Aging Aircraft Research Program (NAARP), the Full-Scale Aircraft Structural Test Evaluation and Research (FASTER) Facility was established at the FAA William J. Hughes Technical Center for testing fuselage panels under conditions representative of those experienced by an aircraft in actual operation. The FASTER facility can test panels cut from an actual aircraft fuselage as well as panels designed to mimic the aircraft fuselage. The FASTER facility is generating data to support and validate analytical models being developed under the sponsorship of the FAA to assess aging aircraft with multiple cracks in various patterns. An essential component of the FASTER facility is the Remote Controlled Crack Monitoring (RCCM) system developed to track and record the formation and growth of cracks in real time during a test. Recent upgrades were made to the RCCM system to measure cracks at multiple locations simultaneously during the test.

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The RCCM system is a computer-based video data acquisition system capable of tracking crack growth from multiple cracks anywhere on the surface of a test panel. Because of the size of the test panels (20 ft by 6 ft), the system consists of multiple cameras; two mounted on each of two computer-controlled, high-precision x-y-x translation stages. On each stage, two black and white RS-170 format analog cameras are mounted and are used to monitor formation and growth of cracks. A high magnification zoom lens (narrow-field-of-view lens) is attached to the first camera and

provides a field of view ranging from 0.05″ to 0.5″. A zoom lens (wide-field-of-view lens) is attached to the second camera and provides a field of view ranging from 2″to 14″. Additionally, a single camera is mounted on the corner of the fixture to provide a view of the entire test panel. The cameras feed the crack images directly to two computers and three VCRs where the images can be recorded both in video and digital format for later analysis as well as monitoring in real time. The total system provides real-time crack length measurement capabilities from the cameras on each stage with a resolution down to 0.0001 inch and can still track cracks up to catastrophic failure of the test panel.

Currently, fuselage panels are being tested in the FASTER facility to determine the effects of cracking on their strength.

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FAA's DARWIN™ Selected for R&D-100 AWARD

The FAA software code known as DARWIN™ (Design Assessment of Reliability With Inspection) has been selected in a national competition for an R&D-100 award given by R&D Magazine. These national, prestigious, highly competitive awards presented annually recognize the top 100 most technologically significant engineering products that are commercially available to industry. The R&D-100 award will be presented formally on September 27 at the Museum of Science and Industry in Chicago. The DARWIN™ code is an output of a 4-year FAA research, engineering, and development grant with the Southwest Research Institute (SwRI). SwRI developed the tool in collaboration with engine manufacturers Honeywell, Rolls Royce-Allison, General Electric, and Pratt & Whitney.

The DARWIN™ computer design tool has been recognized by FAA Aircraft Certification as an acceptable means for the engine manufacturers to improve the structural integrity of turbine engine rotor disks used in commercial aircraft engines. Improved rotor integrity addresses the most critical engine safety issue, uncontained disk failure, in commercial service today. The code assesses the rotor design and life risk management process by considering the uncertainties in hard-alpha melt-related material defects (size, location, and occurrence rate), stresses, crack growth, nondestructive inspection effectiveness, and shop visit rate. DARWIN™ has received strong acceptance by most of the turbine engine manufacturers worldwide.

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DUAL USE SCIENCE AND TECHNOLOGY (DUST) PROGRAM

The Dual Use Science and Technology (DUST) Program is a Department of Defense (DOD), congressionally mandated program. Started in fiscal year 1997 as the Dual Use Applications Program (DUAP), it has its roots in the Technology Reinvestment Project (TRP). The FAA has participated in these programs to varying degrees over the past several years.

Dual Use as the name implies is a program that makes use of technologies that have a dual use. The definition of a dual use technology is one that has both military utility and sufficient commercial potential to support a viable industrial base. The key to a successful project is to identify where the services and industry have mutual interest and can work together to develop technologies that meet both defense and commercial needs.

Objectives – The DoD's objectives under this program are to partner with industry to jointly fund the development of dual use technologies needed to maintain their technological superiority on the battlefield and for industry to remain competitive in the marketplace. This is accomplished through the use of streamlined contracting procedures, and cost sharing between the Office of the Secretary of Defense (OSD), the Services, and Industry. However, just as important, the DOD is making the dual use development of technologies with industry a normal way of doing business in the Services.

The FAA's interest in this program is to collaborate with both the Services and industry. In doing so, the FAA can avoid duplication of effort, leverage research and development funding, and remain on the leading edge of technologies that are being developed in the private sector. Participation in the DUST does not require the insertion of project funds, although, additional leveraging of DUST funding may be accomplished with FAA funding.

Benefits to Industry – The DUST Program provides industry a vehicle to form beneficial partnerships with other firms, Defense labs, or universities. Through these partnerships, companies can leverage scarce science and technology funding and gain access to advanced technology. In addition, collaborating with the Services can increase the potential for transition of technologies into defense systems, which can lead to increased markets**.**

The infusion of the FAA into the process allows industry to interact simultaneously with the FAA. This can lead to an increased market base on the civilian side as well as increasing the credibility of their products. This unique partnership can also help industry to develop technologies relevant to the FAA's and the aviation industry's needs.

Process – The Services issue a joint Broad Agency Announcement (BAA) soliciting proposals from industry in specific topic areas. Proposals that meet the minimum requirements are ranked based on the quality of industry cost share, military benefit, commercial viability, and technical and management approach. Based on available funding, the top ranked proposals will be selected.

The FAA's participation in this process starts with the selection of topics in which we have interest. The Services are then contacted and technical personnel are made part of the evaluation team. The FAA will then be involved in the technical effort for those proposals that are selected.

The FAA has reached a new milestone in the DUST Program. For the first time, starting with the FY02 solicitation, FAA technical organizations will be coauthoring and cofunding Air Force Dual Use topics. In a unique partnership with the Air Force's Dual Use Program Office, both the Wildlife and Aging Electrical Systems Research programs will be taking advantage of this program. This more proactive approach allows the FAA to be a full partner and receive the full benefits of the program.

Minimum requirements for DUST Projects – The proposals should be for the development of a dual use technology that will meet a military need and have sufficient potential commercial applications to support a viable production base.

At least half the cost of each proposed project must be paid by nonfederal participants, one of which must be a for–profit company. The remaining cost of the project will be shared by the sponsoring Service and the DUST Program. The DUST Program can contribute no more than 25% of the cost of the project.

Industry awards must be based on competitive procedures and based solely on merit.

Projects must be awarded using nonprocurement agreements, i.e., Cooperative Agreements or "Other Transactions." These vehicles provide a less burdensome and more creative arrangement between the government and industry and attract participation of commercial companies that do not normally participate in defense procurements.

The projects must result in the development of a technology, not the application of a technology.

Funding for DUST –The Fiscal Year 1998 Defense Authorization Act has established goals for the initiation of dual use projects for each of the military departments. The goals are based on obligations of 6.2-Applied Research funds and start at 5% for Fiscal Year 1998 and climb to 15% for Fiscal Year 2001.

DUST funding thus far by fiscal year:

FY97	$65M
FY98	$68M
FY99	$30M
FY00	$30M
FY01	$30M

For more information on how your organization can get involved in and benefit from this program see the DOD Dual Use web site at http://www.dtic.mil/dust Peter L. Sparacino , AAR-400, 609-485-5430.

Center of Excellence Successfully Completes Phase I Research

The Center of Excellence (COE) for Airworthiness Assurance (AWA) is highlighting Phase I research results at a major symposium being co-hosted by the Boeing Corporation and the Northwest Mountain Region in Seattle, WA, November 14, 15 and 16, 2000.

Chris Seher, AAR-400, presents awards to Carol Gregorek, OSU, and Lisa Brashe, ISU

Air Transportation Centers of Excellence are long-term partnerships established with academia and industry. COE partners are intended to serve as a world-class pool of national resources, accessible to immediately assist the agency in performing mission critical research and development. At the culmination of each 3-year phase, Center close-out activities include a major symposium to present research results and formal audits of matching funds.

Phase I of the COE-AWA accomplished some significant technical goals according to Catherine Bigelow, Airworthiness Assurance COE Technical Director, "this Center has been quite a success story, contributing $33 million to research programs supporting FAA's regulatory mission for aircraft safety over the last 3 years. Half this amount, provided by academia and industry as a result of the COE's matching funds requirements, has significantly leveraged FAA research dollars."

Phase II, beginning December 1, 2000, will include a new management structure and other streamlining initiatives such as web-based applications to publicize, coordinate, and process research opportunities between multiple government sponsors, academic institutions, and industrial partners. According to Patricia

Watts, FAA Centers of Excellence Program Manager, "Another substantive program component planned over the next three-years is the expansion of the Center to include NASA as a joint research sponsor."

Additional plans call for the inclusion of DoD laboratories as cosponsors. The anticipated expansion of funding organizations will provide important program visibility and will maintain an agenda aggressively supporting the current government fatal aviation accident reduction goal.

This aggressive agenda necessitates changing operations to further support the member organizations. "Streamlining the Center's operations process should attract government dollars outside the FAA to enhance aircraft safety research investments," according to Watts. Included in the streamlining initiatives are plans to make the grants and contracting processes more responsive to COE sponsors and participants and modifying the management infrastructure that supports over 45 academic institutions and 90 industrial affiliates.

The Airworthiness Assurance Center of Excellence is the fourth COE established by the FAA since 1992. Funded through cooperative agreements and contract awards, 150 COE academic and industry partners and affiliates have conducted joint aviation research for the FAA and NASA over the past eight years. A new COE is expected to be established during FY01. FAA Centers of Excellence are managed under the direction of Chris Seher, AAR-400, Director, Airport and Aircraft Safety R&D Division.

The Airworthiness Assurance Symposium details and registration materials are available on the AACE website at www.aace.ohio-state.edu

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FAA Adopts Insulation Airworthiness Directive

On May 26, 2000, the FAA adopted a new airworthiness directive (AD) requiring the removal of metallized Mylar insulation blankets in over 700 commercial transports. The FAA views the metallized Mylar as an unsafe condition based on a number of aircraft fire incidents involving the metallized Mylar insulation and research conducted by the Fire Safety Section, AAR-422.

AAR-422 fire tests demonstrated that the metallized Mylar is the only aircraft insulation cover material that can be readily ignited with an electric arc. The test results were published in report DOT/FAA/AR-TN00/20, "Flammability of Aircraft Insulation Blankets Subjected to Electrical Arc Ignition Sources," authored by Pat Cahill. The report documents tests demonstrating the relative ease of ignition of metallized Mylar thermal acoustic insulation subjected to an electrical arc ignition source, as opposed to other types of aircraft insulation which resist ignition by electrical arcs or quickly self extinguish.

The AD also specifies that replacement insulation blankets must be compliant with the "radiant panel" fire test, adapted by AAR-422, to measure the in-flight fire resistance of aircraft insulation blankets. Before the new fire test was selected, numerous full-scale and mock-up tests were conducted to evaluate the behavior of the insulation blankets during a hidden in-flight fire in the "attic" space above the cabin ceiling. Because of their extremely low weight, the behavior of the insulation cover films, when subjected to heat or flame, is dominated by physical effects such as melting and/or contraction. The flammability of the insulation films was found to depend on chemical composition, thickness (weight), type of scrim (tear stopper), and scrim adhesive. The radiant panel test was selected because it produces data on the films that correlates with the mock-up/full-scale test results. The selection criteria are that the films must not ignite when subjected to the specified test exposure condition (radiant heat and piloted ignition source).

Currently, AAR-422 operates the only radiant panel test approved by the FAA for certification testing of replacement blankets. Consequently, numerous fire tests have been conducted on candidate replacement

blankets in support of Service Bulletins under development by Boeing and new designs by the insulation blanket suppliers seeking FAA approval. For example, on June 6-7, 2000 about 200 radiant panel tests were conducted on new blanket samples submitted by Boeing, Long Beach, CA. The tests were witnessed by engineers from Boeing and the Los Angeles Aircraft Certification Office, ANM-130L. Other companies recently submitting materials for certification testing were Mexmil and Orcon, two major suppliers of aircraft insulation blankets, and Delta Airlines.

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Book on Polymer Fire Retardancy Published

Fire Retardancy of Polymeric Materials, the first comprehensive treatise on fire retardancy in polymeric materials since the 1970s, was published by Marcel Dekker, Inc. Chapter 11, Solid-State Thermochemistry of Flaming Combustion, was written by Dr. Richard Lyon, AAR-422. Rich manages and conducts the Fire-Resistant Materials Program, a basic research effort to develop the enabling technology for ultra-fire-resistant cabin materials. The goal of the program is to eliminate materials as a factor in aircraft fire fatalities. The program consists of research conducted by universities to develop new highly fire-resistant polymers and supporting technology to understand the fundamental mechanisms controlling material flammability.

Chapter 11 describes research primarily conducted by Rich to describe and predict the thermal degradation of polymers. It is an in-depth, analytical treatment of the solid-state combustion process, including ignition, steady burning, fuel generation, decomposition temperature, char yield, heat of combustion, and heat of gasification. In the final section, the analytical and empirical relationships derived in the text are applied to a prediction of polymer flammability, i.e., heat release rate. A sample calculation for polycarbonate (e.g., LexanTM) gave good agreement with experimental data. The chapter contains 124 references.

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Upgraded Materials Fire Test Handbook Published

The upgraded Aircraft Materials Fire Test Handbook was printed and distributed recently. It is also accessible on the Fire Safety Section's web site (www.fire.tc.faa.gov). The latest version of the handbook, initially published in 1990, is a product of the FAA's Fire Safety Program and the activities of the International Aircraft Material Fire Test Working Group. The working group is administered and chaired by Dick Hill, AAR-422. The handbook is the most detailed description of all FAA-required material fire test standards presented in a consistent format, which includes scope, definitions, test apparatus, test specimens, conditioning, procedure, report, and requirements. A supplement follows each required fire test description containing advisory material pertinent to referenced paragraphs. The handbook also contains a number of nonrequired fire tests that are used to screen aircraft materials. Moreover, to broaden the utility of the handbook, the appendices contain the following information: FAA fire safety regulations, FAA approval process, aircraft materials, regulatory methodology used by other countries, aircraft industry internal test methods and guidelines, laboratories actively using fire test equipment, and commercial manufacturers of test equipment. The Transport Airplane Directorate, ANM-100, sponsors of the Fire Safety Program, are proposing that the handbook be made the primary means of compliance for approving the fire test performance of interior materials as required by Federal Aviation Regulation (FAR) 25.853.

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AANC NOTES

Commuter NDI Program – The FAA Airworthiness Assurance Nondestructive Inspection Validation Center (AANC) is teaming with Northwestern University, Fairchild, and Cessna to investigate inspection problems and new requirements for the commuter industry and to assess the use of conventional and advanced nondestructive inspection (NDI techniques to solve these problems. The overall goal is to)develop NDI techniques for common problem areas that are reliable, easy to use, and economical for the commuter airlines to implement. The current problem area being addressed is the wing spar of the Fairchild Metro II SA226 aircraft. Northwestern University has developed an ultrasonic inspection method to detect third-layer cracks at specific rivet locations inside the wing. This inspection is difficult in that the area is only accessible from the nacelle opening and the access port is 4″ in diameter. An automated, scanning inspection system has been designed, fabricated, and tested on specimens and actual aircraft. Flaw detection results have been promising. Current activities are validating the inspection system on operating aircraft and integrating a new procedure into the appropriate Original Equipment Manufacturer (OEM) manuals.

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Flaw Detection Assessment in Composite Honeycomb Structures — A new experiment is underway to evaluate flaw detection via widely-used composite inspection methods. Typical disbond, delamination, and impact flaws have been engineered into a series of composite honeycomb specimens. Tap tests are being conducted using both human impact techniques and NDT equipment that has recently been introduced to automate and improve acoustic tap testing. Some portions of the testing will take the form of blind Probability of Detection (PoD) studies while other portions of the testing will determine signal-to-noise ratios from which flaw detection can be inferred. The primary factors affecting tap testing included in this study are composite materials, flaw profiles, mechanical interactions (impact and audible response), and environmental conditions. One phase of this effort will utilize airline personnel to study tap test PoD in the field and to formulate improvements to this critical inspection procedure. The tap test results will be compared with quantitative data from other NDT devices. While tap testing is the initial focus of this effort, other composite inspection techniques such as low/high frequency bond testing, through-transmission and pulse-echo ultrasonics, thermography, and mechanical impedance analysis will be applied to complete a comprehensive assessment of flaw detection in composite structures. Developers of advanced inspection devices that are capable of detecting disbonds and delaminations in honeycomb structure are invited to participate in this experiment.

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Thermography for Corrosion Detection — The AANC recently completed a project with Wayne State University which evaluated the capability of thermography to quantify corrosion on the back side of single aircraft skin. Problems were encountered early in this project when the corroded area of interest was in an area of variable paint thickness. Work was done on several AANC manufactured test specimens and on engineered corrosion on the AANC DC-9 in an attempt to understand the effects of varying paint thickness on the thermography data and to develop procedures to identify and deal with this effect when encountered during a thermography inspection. An area on the AANC DC-9 was selected for a final validation test. Corrosion was chemically introduced in areas containing variable paint thickness. The engineered corrosion removed as little as .002″ of material from the 0.051″ thick skin. The areas of material loss were measured with ultrasonic and eddy-current NDI techniques for comparison. The thermography inspection resulted in no false calls and produced results quantifying material loss that were comparable to the other

NDI techniques. Detailed results of this project and the blind test are contained in a report submitted to the FAA Technical Center.

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United States Coast Guard On-Line Training for HH-60J Main Rotor Hub Inspection — As part of Sandia's Work-for-Others agreement with the United States Coast Guard Aircraft Repair and Supply Center (USCG/ARSC), AANC is currently developing an on-line eddy-current training program. Last year, AANC supported the USCG/ARSC by providing specific eddy-current training for 46 Coast Guard inspectors. The eddy-current training was created to comply with a shortened inspection interval for the Sikorsky HH-60J helicopter main rotor hub assembly. The inspection changed from a 600-hour overhaul inspection to a 200-hour recurring on-aircraft inspection. The initial training was conducted last year at Coast Guard Airstations throughout the U.S. The course consisted of eddy-current training material, equipment setup, practical exam on rotor hub test specimens, and on-aircraft inspections. This year has been devoted to developing an on-line training course for recurrent inspector training. AANC and Sandia National Laboratories Corporate Online Training Team designed, developed, tested, and implemented the prototype course in May. The HH-60J on-line course includes a homepage with introductory information, a login page to track the user's progress, and a test, which documents the inspector's fundamental knowledge of eddy-current principles. The current on-line training is accessed via an Internet connection. Phase II of the project will incorporate training modules with embedded questions and graphics.

David Moore, AANC, (505) 844-7095

Composite Doubler Repair of DC-10 Aircraft — The AANC provided a composite doubler installation and training workshop to Federal Express personnel. Composite shop workers were provided with hands-on training in the commercial aircraft composite doubler installation process. NDT shop personnel were instructed on the use of pitch-catch ultrasonics to inspect the doublers. NDI Reference Standards and test specimens with engineered flaws allowed FedEx inspectors to evaluate the inspection technique. This workshop represents the first phase of the technology transfer portion of the DC-10 composite doubler repair program. It also completes the prerequisite to the on-aircraft installations (Pilot Program). Training was provided in every stage of the doubler installation including: (1) Boron-Epoxy material handling and cutting, (2) doubler layup and debulk, (3) surface preparation, (4) operation of Phosphoric Acid Containment System (PACS), (5) vacuum bag, bleeder cloth, and heater blanket assembly for curing, (6) curing process and operation of Heat Con hot bonder equipment, (7) doubler surface protection, and (8) QA checks. Interested FAA personnel attending the workshop included engineers from the Chicago ACO and FedEx PMIs from the Memphis FSDO. The Pilot Program DC-10 repairs are scheduled to begin at the FedEx maintenance facility next month.

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NDI Capability Characterization – The AANC has developed a four-step methodology for assessing capability of new NDI equipment or techniques (guideline document available from AANC). The objective of this process is distinct from that of the reliability experiments that are conducted at the AANC, and focuses on determining whether a particular system is even able to perform typical aircraft inspections. The first step in the process asks the system developer to characterize the types of inspection tasks that they believe their system is capable of performing. A series of standardized questionnaires have been developed to aid in this process. The second step is performed by the AANC in preparation for the capability assessment inspections and involves developing a test plan for the assessment. Considerations include determining which of the system designers' claims should be assessed, which test specimens should be used, the need to gather metrics other than the ability of the system to detect defects, and issues concerning

how an inspector will use the signal from the system to make calls. The test specimen selection is aided by the two databases that have been developed; one summarizes characteristics of typical aircraft inspections and one details the specifications of reference standards used for these inspections. The AANC has expanded its library of test specimens for use in this process. The third step in the capability assessment process has the system designers actually perform the inspections as determined in the previous step. When possible, on-aircraft inspections should also be included. The system should also be evaluated using the Human Factors Audit, which considers the usability of the system. Finally, in the fourth step, the AANC observers provide feedback to the system designers as to both the performance and usability of their system.

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AIR-1 NDI/Nonstructural Systems Review

Representatives of the Aircraft Certification Service (AIR-1) and the Airport and Aircraft Safety R&D Division recently conducted a nonstructural systems review visit to Iowa State University (ISU) and the Airworthiness Assurance Nondestructive Inspection Validation Center (AANC) at Sandia National Laboratories.

John Petrakis (AIR-120, Elizabeth Erickson (AIR-1), and Vi Lipsky (ANM-101) tour an aircraft test bed at CASR

At ISU, the FAA representatives received a tutorial on inspection technology and observed some of the newer technologies being developed at the Center for Aviation Systems Reliability (CASR). Elizabeth Erickson, Director of the Aircraft Certification Service, said that she was generally pleased with the research being conducted by CASR.

The presentations at AANC focused mainly on electrical interconnect systems research, and in particular, the intrusive inspection project. Activities included presentations by Chris Smith and Sandia staff, a demonstration of wire testing technology used in the Intrusive Inspection project, and a tour of two aircraft test beds. Smith's presentation included short updates on the arc-fault circuit breaker task and wire testing systems development project.

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New Personnel

The Airport and Aircraft Safety R&D Division has recently welcomed several new employees. They are:

- **Donald Altobelli**. Don comes to the Division after 25 years in government service with the Navy at Patuxent River, MD, and Trenton, NJ. He holds a Bachelor of Science in Mechanical Engineering from New Jersey Institute of Technology. Don is currently working with Aircraft Catastrophic Prevention program in AAR-432.

- **Holly Cyrus**. Holly joins AAR-411 following 13 years with AOS-240 in Oklahoma City, OK. She has a Bachelor of Science in Mechanical Engineering and is working in the Runway Incursion and Airport Lighting Technology,

- **Robert Murphy Flynn**. Murphy comes to AAR-410 after 8 years with the U.S. Army Corps of Engineers. He has a Bachelor of Science from Florida Institute of Technology. Currently he is a quality assurance engineer on the pavement reconstruction project on the National Airport Pavement Test Machine.

- **Stephen Materio**. Steve is the person at the controls of the National Airport Pavement Test Machine after spending the last decade supporting the FAA with Galaxy Scientific. He holds a commercial pilot rating as well as an A&P license and has previously been an airport manager.

- **Brenda Mullis**. Brenda joins AAR-410 as the new Branch secretary. She has supported the FAA for 14 years with a number of contractors, most recently Battelle.

- **Jim Patterson**. Jim enters government service following 5 years supporting the FAA with Galaxy Scientific. He has a Bachelor of Science in Aviation Management/Flight Technology from Florida Institute of Technology. Jim is currently working in Visual Guidance and Airport Rescue and Firefighting with AAR-411.

- **Manuel Rios**. Manny comes to the Division after 12 years with the Navy at Lakehurst, NJ. He has a Master of Science in Mechanical Engineering from Drexel University. He is currently working in Aircraft icing.

Awards

Two Division employees won a total of three awards at the FAA William J. Hughes Technical Center Awards Program.

- **Model Work Environment**: Dr. Catherine Bigelow for her work on the Federal Women's Program (FWP) Women's History Month web page and brochure. The national FWP selected the brochure for use in its own programs.

- **Professional Society:** Dr. Catherine Bigelow for her work with the Society of Automotive Engineers (SAE). Dr. Bigelow was the FAA representative on the SAE subcommittee on Probabilistic Method Development. She also setup a session at the SAE conference highlighting FAA results relating to aviation safety.
- **Publications of the Year:** John Bakuckas for the technical paper "Comparison of Boundary Correction Factor Solutions for two Symmetric Cracks in a Straight-Shank Hole." Bakuckas developed a method to predict crack initiation, crack growth rates, and residual strengths of aircraft structures susceptible to widespread fatigue damage. To validate the methodology, Bakuckas conducted a round-robin exercise with the cooperation of six other researchers at universities and research laboratories around the country.

Conferences

2nd Workshop on Risk Analysis and Safety Performance Measurement in Aviation

The Airport and Aircraft Safety R&D Division and Rutgers University are jointly sponsoring a Workshop on Risk Analysis and Safety Performance Management in Aviation on August 22-24, 2000 at the FAA William J. Hughes Technical Center in Atlantic City, NJ. The current focus of this effort is primarily knowledge sharing of philosophies, approaches, models, and methodologies among FAR Part 121 air carriers.

The workshop will introduce and review the concepts and methods associated with aviation system safety and risk analysis against the backdrop of the Safer Skies agenda. Models of system safety, such as the Reason Model, which includes organizational, task/environment, and individual factors in accident analysis, will be presented and discussed.

The workshop will also review risk analysis methods and their application and links to aviation safety management.

More information on the workshop can be found at www.rci.rutgers.edu/jluxhoj/risk.

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2000 USAF Aircraft Structural Integrity Program (ASIP) Conference

The Materials and Manufacturing Directorate and The Air Vehicles Directorate of the Air Force Research Laboratory and the Deputy for Engineering, Aeronautical Systems Center will hold the 2000 USAF Aircraft Structural Integrity Program (ASIP) Conference at the Hyatt Regency Hotel, San Antonio, Texas. The conference is intended to bring together world leaders in the area of aircraft structural integrity and associated technologies to exchange information on the latest developments in the design and acquisition of new aircraft systems and the maintenance of aging aircraft systems in both military and commercial fleets. More information may be found at www.asipcon.com.

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